

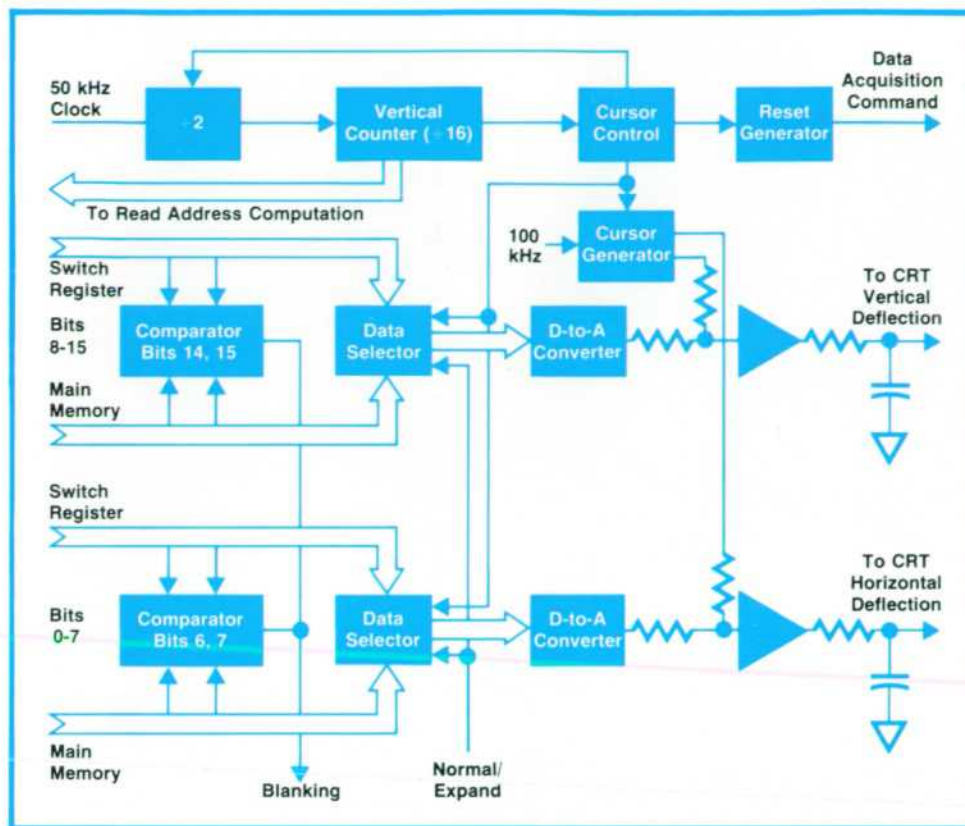


Fig. 8. In the MAP mode, the clock pulses (divided by 2) go directly to the "vertical" counter so addresses are read out at a 25 kHz rate. When the vertical counter reaches terminal count, the data selectors switch to the front-panel switch register and a cursor is traced at the address indicated.

sponse. The RC response characteristic retards the CRT beam as it approaches the next position, brightening the trace there to give an indication of direction.

The address of a particular dot can be determined with the MAP LOCATOR cursor. When all 16 words stored in memory have been displayed, the digital-to-analog converters are switched to the front-panel switch register, which provides the digital information for positioning the CRT beam. The phase-shifted 100-kHz sine waves are then added to the deflection voltages, the CRT beam is unblanked, and a small circle is written at that position.

In the EXPAND MAP mode, the D-to-A converters are switched to bits 0 to 5 (horizontal) and 8 to 13 (vertical). The CRT is blanked, however, until bits 6, 7, 14, and 15 of the word being read out of memory agree with the corresponding bits of the front-panel switch register. Hence, only those words lying within the same sector as the cursor are displayed. If two successive words are not in the same sector, the direction vector is blanked to prevent the presentation of misleading lines.

If the instrument is mapping in the repetitive mode, memory control is returned to the data acquisition circuits following the generation of the cursor. A new sequence of 16 words is then acquired and displayed. The short display cycle (200 ms) and the persistence of the CRT phosphor cause the map to appear as a

Inside the Model 1607A Logic State Analyzer

The Model 1607A Logic State Analyzer was designed with a dual purpose in mind: (1) to serve as an extension of the Model 1600A Logic State Analyzer and (2) to function independently as the logic state input for laboratory oscilloscopes.

Data acquisition is performed in the Model 1607A Logic State Analyzer in exactly the same way that it is in the Model 1600A. However, to make the 1607A compatible with as many CRT displays and oscilloscopes as possible, there are some differences in the way the display section works. For example, an extra state is inserted following state 15 in the horizontal counter. This adds 20 μ s to the retrace time to allow sufficient settling time for oscilloscopes that have limited horizontal bandwidth.

The amplitudes of the X, Y, and Z outputs are adjustable to accommodate the input settings of the associated oscilloscope. This allows the user to switch back and forth between time-domain and data-domain displays with a minimum of readjustment. Also, since the z-axis input of most scopes is on the rear panel and is not switchable, a switch for disabling the z-axis signal is provided on the front-panel of Model 1607A.

Another problem in compatibility concerned the trigger-word intensification. Because of the non-linear characteristics of the z-axis in most scopes, and also because of defocussing effects, it was difficult to define a universal brightening scheme. Therefore, trigger-word brightening is accomplished by writing the trigger word four times before proceeding to the next word. This is done by intercepting the horizontal counter carry bit four times before incrementing the vertical counter.

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